DBMS- lab Assignment - 6

Normalisation

P. Goutam
19BCS085

1) The table is not in INF. because the attribute Courses contains more than 1 value.

Ex:-

ID - 1 courses → OS, DBMS, so it's not INF, it can't be in 2NF & 3NF.

Converted table:

ID	Name	Age	location	Courses
1	sachin	22	Delhi	OS
1	Sachin	22	Delhi	DBMS
2	Ram	22	Jamshedpur	DAA
2	Ram	22	Jamshedpur	DBMS
3	Mike	23	chennai	ML
3	Mike	23	chennai	OS
4	sameer	21	Bangalore	DAA
4	Sameer	21	Bangalore	ML
5	vijay	22	Mumbai	ML
5	vijay	22	Mumbai	DBMS

Now

the table is in INF.

Prime attributes → ID & Name

Non-prime → Age, location, courses

FD → ID → Age, location, courses

* The second table mentioned is in INF.

2)a) This is not in 2NF because there is partial dependency {Duty-shift-Id} → Duty shift

for a table to be in 2NF. all the Non-key attributes should be functionally dependent on the entire primary key.

The primary key is {Imp ID, Duty-shift ID}.

But {Duty-shift-ID} → Duty-shift, Hence partial dependency exists. 2NF would be primary key.

primary key.

Emp-ID.	Duty-shift-ID	Name	Age.
101	1	Arun	26
102	2	Bobby	28
103	3	Suresh	32
104	1	Sita.	24.

Name, age are non-prim. attributes

Primary key.

Duty-shift-ID	Duty-Shift
1	Morning
2	Afternoon
3	Night.

Duty-Shift is non-prime attribute.

b) This is not in 2NF because there exists partial dependency.

$$\{Project\text{-}ID\} \longrightarrow \{Prof\text{-}Name\}$$

The primary key is {Emp ID, Project-ID}. All the non-prime attributes Name, Proj-Name, No of hours should completely depend on primary key.

2NF would be

Emp-ID	Project-ID	Name	No of hours
123.	Prj-21	Ajay	10
321	Prj-45	chay	15
546.	Prj-24.	Rajesh.	23
765	Prj-11	Abhishek	16

{Emp-ID, Project-ID} → Primary key.

Project-ID	Proj-Name.
Prj-21	Speech-system.
Prj-45	HR-system.
Prj-24	Automate tickets.
Prj-11	NLP

{Project-ID} → Primary key.

3) a) Not in 3NF, there exists transitive dependency. between {cust-address} & {cust-loc} on a non-primary key which is {cust-post code}.

3NF would be.

cust-ID	cust-Name	cust-postcode.
25	Dell	560050
45	Lenovo	560046
89	acer	210067
90	samsung.	4500078

{cust-ID} → primary key.

Cust - postcode	Cust - Address	Cust - loc.
560037	whitefield.	Bangalore
560046	Marathahalli	Bangalore.
210067	Bandra	Mumbai
450078	Delhi Central	Delhi

{Cust - post code} → Primary key.

(b) Here, there exists transitive dependency. So it is not in 3NF {contractor} → {Fee}

There should be no transitive dependency in 3NF.

{Building} → primary key.

{contractor, Builder, fee} → Non-prime attributes.

3NF should be

Building	contractor	Builder
B-2156	Taylor.	Prestige.
B-8765	Sandeep.	Hiranandani
B-4567	Vishaka	Tata.

Primary Key – {contractor, Fee}

Contractor	Fee.
Taylor.	2567891
Sandeep	3567356
visakha	4567990

The End